

Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) A particle size distribution analysis apparatus comprising a sample measurement zone defining a sample of particles, a light emitting means for providing a source of light incident upon the sample measurement zone, and at least a first detection means for measuring light levels in the apparatus at particular scattering angles and output a signal to a computation means for calculating said particle size distribution enabling the particle size distribution of particles contained within said sample to be determined, wherein said computation means [calculates, in use, said particle size distribution taking into account, for each of said scattering angles,] is arranged to substantially completely compensate for the reflection, by at least one window of said measurement zone, of light that has previously been scattered by said particles, at each of said scattering angles when calculating said particle size distribution.

2. (currently amended) An apparatus according to claim 1 wherein there is provided a second detection means and said computation means ~~modifies, in use,~~ uses measurements taken from said first detection means ~~based upon~~ and measurements taken from said second detection means in order to take in to account reflections.

Claims 3-13 (canceled)

14. (currently amended) A method of improving the accuracy of a particle size distribution calculation performed by illuminating

a sample with light from a light emitting means and measuring an amount of light scattered by the sample comprising providing at least a first detection means and [calculating the particle size distribution taking into account] substantially completely compensating for reflection by at least one window of a measurement zone of light, that has previously been scattered by the particles at at least two scattering angles.

15. (currently amended) A method according to claim 14 which comprises providing a second detection means and ~~modifying~~ predicting measurements taken from said first detection means by using measurements taken from said second detection means.

16. (currently amended) A method according to claim 15 in which a measurement taken from said second detection means is ~~modified~~ predicted by using measurements taken by said first detection means.

17. (currently amended) A method according to claim 15 which comprises ~~compensating~~ predicting a measurement from one of the first or second detection means detecting light scattered having a directional component towards said light emitting means ~~with~~ by using a measurement from the other of the first or second detection means detecting scattered light having no directional component toward said light emitting means.

18. (currently amended) A method according to claim 15 which comprises ~~compensating~~ predicting a measurement from one of the first or second detection means detecting light having no directional component towards said light emitting means ~~with~~ by using a measurement from the other of the first or second detection means detecting scattered light having a directional

component toward said light emitting means.

19. (original) A method according to claim 15 which comprises providing said first and second detection means at substantially mirror symmetric angles relative to a beam of light emitted by said light emitting means.

20. (original) A method according to claim 15 which comprises providing a plurality of detectors for said first detection means.

21. (original) A method according to claim 15 which comprises providing a plurality of detectors for said second detection means.

22. (currently amended) A particle size distribution analysis apparatus comprising a cell for containing a sample of particles, a monochromatic light source for illuminating the sample, first and second photodetectors for measuring light scattered by the particles, a processor for processing measurements of the scattered light such that a reflection, by a surface of the cell, of light that has previously been scattered by said particles are taken into account when calculating the particle size distribution, wherein said processor substantially completely compensates for the reflection of light that has previously been scattered by said particles, when calculating said particle size distribution.

23. (previously presented) An apparatus according to claim 2 wherein an angle at which the second detection means is inclined relative to an optical axis of said light emitting means is equal to 180° minus an angle at which said first detection means is

inclined relative to the optical axis.

24. (currently amended) An apparatus according to claim 2 wherein said computation means ~~modifies~~ predicts, in use, measurements taken from said second detection means based upon measurements taken from said first detection means to take in to account reflections.

25. (previously presented) An apparatus according to claim 1 wherein said first detection means comprises a large angle detector which is situated substantially in the range 90° to 0° from the axis of a beam of light emitted from said light emitting means taking the direction of travel of the light as 0° .

26. (previously presented) An apparatus according to claim 25 wherein said large angle detector is situated substantially in the range of 70° to 40° .

27. (previously presented) An apparatus according to claim 25 wherein there is provided a plurality of said large angle detectors.

28. (previously presented) An apparatus according to claim 2 wherein said second detection means comprises a back scatter detector which is situated substantially at an obtuse angle from the axis of a beam of light emitted from said light emitting means taking the direction of travel of the light as 0° .

29. (previously presented) An apparatus according to claim 28 wherein said obtuse angle is substantially in the range 90° to 180° .

30. (previously presented) An apparatus according to claim 28 wherein said obtuse angle is substantially in the range 110° to 170° .

31. (previously presented) An apparatus according to claim 28 wherein there are provided a plurality of said back scatter detectors.

32. (previously presented) An apparatus according to claim 2 wherein there are a plurality of first detection means and the same number of second detection means wherein said first and said second detection means are inclined symmetrically relative to said measurement zone.

33. (previously presented) An apparatus according claim 2 wherein said first and said second detectors are of substantially the same construction.